



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/576,365

03/14/2007

Bruno Lebet

10404.031.00

2291

30827

7590

02/13/2009

MCKENNA LONG & ALDRIDGE LLP
1900 K STREET, NW
WASHINGTON, DC 20006

EXAMINER

WEISZ, DAVID G

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

02/13/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/576,365 | Applicant(s) LEBRET ET AL. | |
| | Examiner DAVID WEISZ | Art Unit 1797 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 March 2007 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20070314</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 101 and 35 USC § 112

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-13 provide for the use of at least one electrically conductive or semi-conductive polymers, but, since the claims do not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

4. Claims 1-13 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 1797

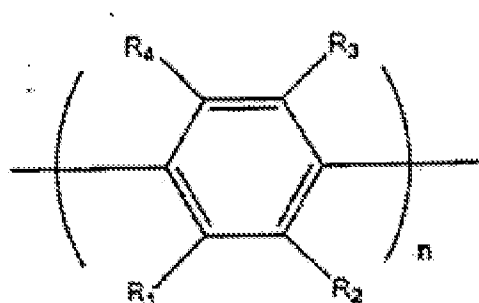
invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-6 and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swager et al (WO 99/57222) in view of Skompska ("Quartz crystal microbalance study of electrochemical deposition of poly(3-dodecylthiophene") films on AU electrodes).

Regarding claims 1-4, Swager discloses a semiconductive polymer as sensitive material in a sensor (**Page23/L11-25**) intended to detect one or more or more nitro compounds chosen from the group formed by nitroaromatic compounds, nitramines, nitrosamines and nitric esters (**Page25/L13-29**). Additionally, the reference discloses the polymer meets the formula:



in which n is an integer ranging from 5 to 100,000, while R1-4 represent hydrogen atoms (**Page4/L1-13**).

However, the reference does not disclose the sensor to be a gravimetric sensor, nor does the reference disclose the polymer to be poly(3-dodecylthiophene).

Skompska discloses a gravimetric electrochemical sensor comprising a poly(3-dodecylthiophene) film deposition (**Abs**). Additionally, the reference discloses poly(alkylthiophenes) to be conductive polymers with good solubility and stability, along with ease of controlling degree of polymer oxidation (**Introduction**).

The references are analogous because both references are drawn toward sensors utilizing semi-conductive polymer films.

It would have been obvious to one having ordinary skill in the art at the time of the invention to use the polymer of Skompska in the sensor of Swager because poly(alkylthiophenes) are very stable, thus allowing one to control the degree of polymer oxidation.

Regarding claim 5, modified Swager discloses all of the claim limitations as set forth above. Additionally, the reference discloses the polymer to be subjected to a doping reaction (**Skompska, 3.1**).

Regarding claim 6, modified Swager discloses all of the claim limitations as set forth above. Additionally, the reference discloses that the polymer is used in the sensor in the form of a thin film covering one or both faces of a substrate (**Skompska, Abs**).

Regarding claim 8, modified Swager discloses all of the claim limitations as set forth above. Additionally, the reference discloses that the thin film was prepared by electrochemical deposition (**Skompska, Abs**).

Regarding claim 9, modified Swager discloses all of the claim limitations as set forth above. Additionally, the reference discloses that the sensor is a quartz microbalance sensor (**Skompska, Abs**).

Regarding claim 10, modified Swager discloses all of the claim limitations as set forth above. Additionally, the reference discloses that the sensor is a multisensor comprising several sensors (**Swager, P6/L15-21**) that are gravimetric sensors (**Skompska, Abs**), at least one of these sensors comprising an electrically conductive or semiconductive polymer as sensitive material (**Swager, P23/L11-25**).

Regarding claim 11, modified Swager discloses all of the claim limitations as set forth above. Additionally, the reference discloses that the nitro compounds to be detected are in solid, liquid or gaseous form (**Swager, P25/L13-29**).

Regarding claim 12, modified Swager discloses all of the claim limitations as set forth above. Additionally, the reference discloses that the nitro compound to be detected is trinitrotoluene (**Swager, P25/L13-29**).

Regarding claim 13, modified Swager discloses all of the claim limitations as set forth above. Additionally, the reference discloses that the sensor detects explosives (**Swager, P25/L13-29**).

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Swager et al (WO 99/57222) in view of Skompska ("Quartz crystal microbalance study of

Art Unit: 1797

electrochemical deposition of poly(3-dodecylthiophene) films on AU electrodes”) as applied to claims 1-6 and 8-13 above.

Regarding claim 7, modified Swager discloses all of the claim limitations as set forth above. Additionally, the reference discloses the polymer is used in the sensor in the form of a thin film of varying thickness (**Skompska, 3.1**). However, the reference does not disclose the film having an thickness within a range of about 10 Angstroms to about 100 microns. As the detector sensitivity is a variable that can be modified, among others, by adjusting said thin film thickness, with said sensitivity changing with thin film thickness, the precise film thickness would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed thin film thickness cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the film thickness in the apparatus of modified Swager to obtain the desired detector sensitivity (*In re Boesch*, 617 F.2d. 272, 205, USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

Art Unit: 1797

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID WEISZ whose telephone number is (571)270-7073. The examiner can normally be reached on Monday - Thursday, 7:30 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. W./

Examiner, Art Unit 1797

/Arlen Soderquist/

Primary Examiner, Art Unit 1797